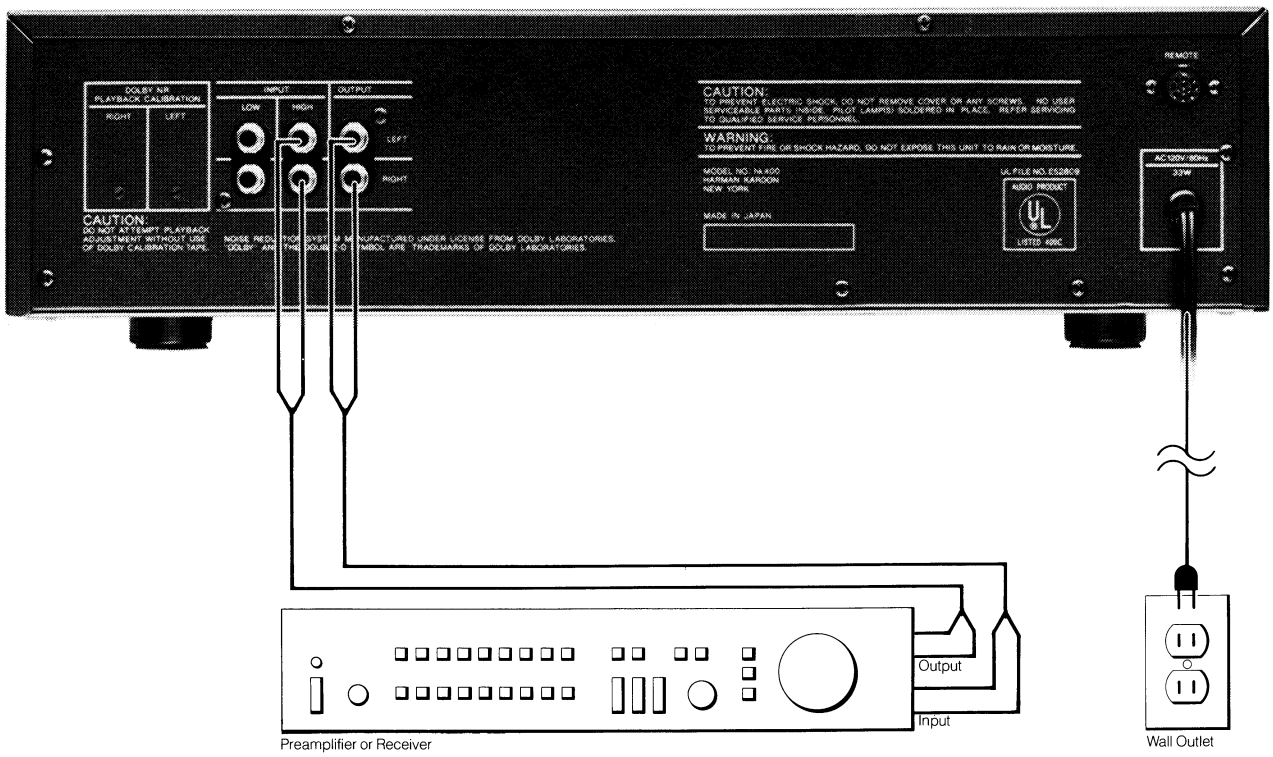
harman/kardon hk400XM
owner's manual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PLAYBACK CALIBRATION
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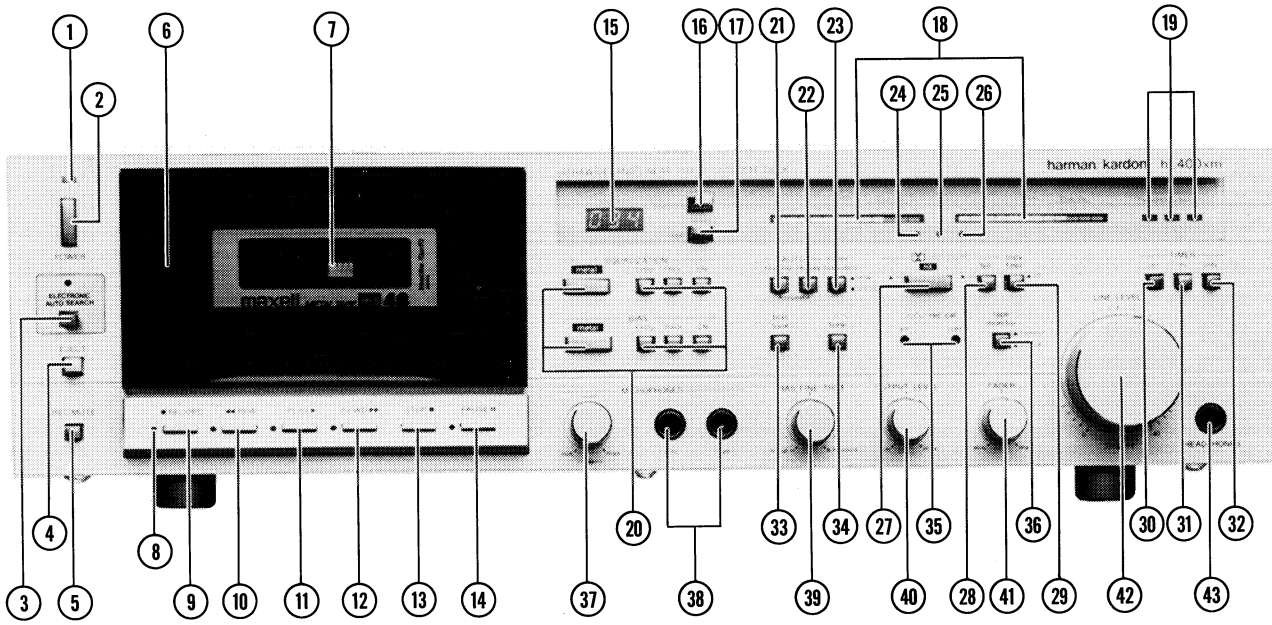
CAUTION:
DO NOT ATTEMPT PLAYBACK
ADJUSTMENT WITHOUT USE
OF DOLBY CALIBRATION TAPE.
CAUTION:
TO PREVENT ELECTRIC SHOCK, DO NOT REMOVE COVER OR ANY SCREWS. NO USER
SERVICEABLE PARTS INSIDE. PILOT LAMP(S) SOLDERED IN PLACE. REFER SERVICING
TO QUALIFIED SERVICE PERSONNEL.
WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.
MODEL NO. TA-A100
HARMAN KARDON
NEW YORK
MADE IN JAPAN
UL FILE NO. E52809
AUDIO PRODUCT
LISTED A9RC
REMOTE
AC 120V 60Hz
30W
Output
Input
Preamplifier or Receiver
Wall Outlet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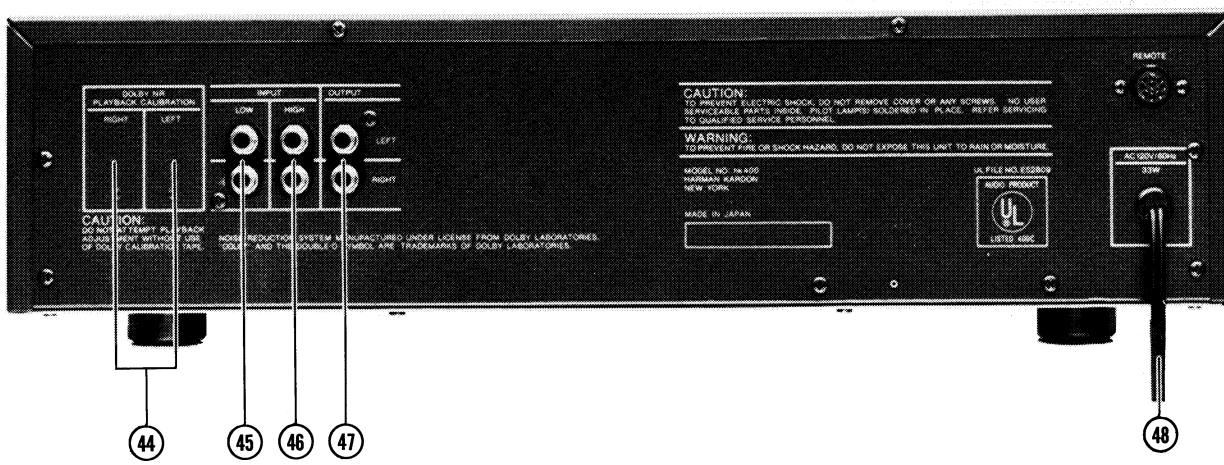
DOLBY NR
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Owner's manual hk400XM

Your investment in a component high fidelity system indicates that you have more than an average interest in music. The fact that your investment includes a Harman Kardon Ultrawideband Metal Tape Deck shows us your appreciation of uncompromised reproduction of the music you enjoy. Throughout the design and manufacture of this unit, we made every effort to assure it will meet all of your expectations.

To ensure continuing high performance, read this manual carefully before you connect and operate your hk400XM tape deck.

Connections

For the moment, leave the POWER LINE CORD (48) of the 400XM unconnected. Put the unit on the table or shelf where it will be installed. Leave enough working space so you can make all the connections easily.

The 400XM requires adequate ventilation. It should not be installed on a cushion or rug and a minimum of 2 inches (5cm) clearance should be provided.

Connecting the 400XM to your preamplifier or receiver

Like most stereo equipment, your 400XM is fitted with pin type RCA connectors. Using standard pin type RCA patch cords (provided), connect the left HIGH INPUT connector (46) on your 400XM with the left tape output connector on your preamplifier or receiver. Connect the right channels similarly.

Using a second set of patch cords, connect the left output connector (47) of the 400XM to the left tape input connector of your preamplifier or receiver. Connect the right channels similarly. Push the plugs in all the way so they are firmly seated, making good electrical contact.

If you find you are getting insufficient gain to achieve proper recording levels (as indicated by the PEAK LEVEL INDICATORS (18)), reconnect the cables from HIGH INPUT (46) to LOW INPUT (45) connectors.

If your preamplifier or receiver does *not* accept pin type RCA connectors, consult your audio dealer for patch cords with proper adaptors.

Power connection

If you have completed the connections above, you are now ready to place the 400XM in its permanent position and plug the POWER LINE CORD (48) into an AC outlet. To turn the unit on and off, press the POWER switch (2). When power is on, the POWER indicator (1) will light.

Controls on the 400XM

Before using your cassette deck, it's important that you familiarize yourself with the various controls on the front panel.

Tape counter and reset

The TAPE COUNTER (15) is used for accurate location of particular passages on a tape. At the beginning of a tape, press the TAPE COUNTER RESET button (17) and the TAPE COUNTER (15) will return to "000." By keeping track of the TAPE COUNTER readout (15), you can easily return to any passage you like.

Memory rewind

The 400XM incorporates a special memory rewind that helps you locate a preset point on the tape automatically. If you wish to return to a specific point on the tape, press the TAPE COUNTER RESET button (17) at that point, resetting the TAPE COUNTER (15) to "000." To return to this point automatically at any time, simply press the MEMORY pushbutton (16) before you press the REWIND button (10). The tape will automatically stop when the TAPE COUNTER (15) reaches "000."

Note: The memory feature on the 400XM retains only one preset point at a time—selecting a new preset point clears the memory of the previous selection.

Electronic Auto Search

With the Electronic Auto Search system engaged, the deck will automatically scan a tape in the fast forward mode and play back eight seconds of music from each selection until the proper one is found and the system is disengaged. To engage the system, press the ELECTRONIC AUTO SEARCH button (3). The deck will scan to the next blank space between selections, then automatically switch to the PLAY-BACK mode. If the system is not disengaged by pressing the PLAY button (11) or STOP button (13), the deck will automatically shift back to the fast forward mode and repeat the process, scanning and sampling, until the end of the cassette is reached.

Note: For the Electronic Auto Search system to function properly, a minimum of 2 seconds of blank space must be left between recorded selections.

Auto Rewind/Replay

The Auto Rewind/Replay feature allows you to rewind a cassette (and replay it if desired)—automatically—once the cassette has played to its end. Press the AUTO REWIND button (21) to its "on" position (in) at any time before or during playback and the deck will automatically rewind the cassette to its beginning once the cassette has ended. Press the AUTO REPLAY button (22) as well, and the cassette will repeat automatically, too. With both buttons in their "on" positions, the cassette will continue rewinding and replaying until the AUTO REWIND/REPLAY system is disengaged.

Bias/equalization

The 400XM is equipped to play and record all types of tape formulations presently available, including the new metal tapes. To get the best possible performance from the tape you're using, choose the appropriate button from the BIAS and EQUALIZATION pushbuttons (20). "Low noise" (LN) for ferric tapes; FeCr for Ferrichrome tapes; CrO_2 for chromium dioxide tapes; metal for metal tapes.

Bias fine trim

For optimum recording, each brand and formulation of tape requires minor adjustment of bias trim.

To set the trim, insert a blank tape, press the TAPE MONITOR button (36) to its monitor position (in) and select the proper bias/equalization setting. Dolby NR and Dolby HX shall be switched off. Using no program source, press the PLAY (11) and RECORD (9) buttons, and while the deck is recording, press and hold the RECORD CALIBRATION TONE button (34). Note the reading of the PEAK LEVEL INDICATORS (18). Release the RECORD CALIBRATION TONE button (34) and press the BIAS TONE button (33). Note the reading of the PEAK LEVEL INDICATORS (18). If the reading of the bias tone is lower than the reading of the record calibration tone, rotate the BIAS FINE TRIM knob (39) clockwise (hi-boost). If the reading of the bias tone is higher than the reading of the record calibration tone, rotate the BIAS FINE TRIM knob (39) counterclockwise (hi-cut).

Each setting is correct only for the brand and formulation of tape in use. If you continue to use the same brand and formulation, readjustment is not necessary. But new adjustments should be made for different tapes.

Record calibration

For best results, the RECORD CALIBRATION set screws (35) should be adjusted for each formulation and brand of tape.

To set the calibration, insert a blank tape, press the TAPE MONITOR button to its monitor position (in), and select the proper bias/equalization settings. Using no program source press the PLAY (11) and RECORD (9) buttons, and while the deck is recording, press and hold the RECORD CALIBRATION TONE button (34). Using a small screwdriver, adjust the RECORD CALIBRATION set screws (35) until the RECORD LEVEL INDICATORS (18) read 0 dB. Record calibration is now complete.

Note: Some inexpensive tape formulations have low sensitivity. With such tape formulations you might encounter difficulty in obtaining 0 dB readings during the above calibrations. In such an event change to a better quality tape.

Dolby* playback calibration

In most cases, the factory setting of the DOLBY PLAYBACK CALIBRATION set screws (44) on the rear panel will provide best results.

However, if your listening room is very hot or very cold, adjustment may be necessary. For calibration, a special Dolby calibration tape (part #00935520A available from Harman Kardon) is required. While playing this tape, adjust the DOLBY PLAYBACK CALIBRATION set screws (44) until the PEAK LEVEL INDICATORS (18) read 0 dB. Dolby playback calibration is now complete.

*Noise Reduction System and Headroom Extension System manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

Output level control

A convenient OUTPUT LEVEL control (40) is incorporated into the 400XM to match the output level of your tape deck with all your other equipment. This prevents bursts of high volume when switching from one program source to another.

Headphones

During recording, you may wish to monitor the program source with headphones. The jack marked HEADPHONES (43) is included for this purpose. We recommend low impedance headphones (less than 1000 ohms). With headphones in use, volume may be adjusted with the OUTPUT LEVEL control (40).

Dolby HX and Dolby NR

The 400XM incorporates the new DOLBY HX headroom extension circuitry as well as Dolby NR circuitry. Together, they provide a big improvement in signal-to-ratio and dynamic range and we recommend the use of both on all recordings.

To record with the DOLBY HX process, press both the DOLBY HX pushbutton (27) before recording. (The DOLBY HX pushbutton (27) automatically engages Dolby NR circuitry.)

When playing back a DOLBY HX recorded tape, it is not necessary that the DOLBY HX pushbutton (27) be in its "on" position (in). It is necessary to have the DOLBY NR pushbutton (28) in its "on" position (in) for proper decoding.

The Dolby HX system functions only during the recording process—the 400XM will play tapes previously recorded with no loss of quality.

Tapes recorded with Dolby NR should be labelled so you can remember to engage the system during playback.

In some cases, recordings from FM broadcasts may contain more noise than was apparent during the original broadcast. To prevent this, place the MPX FILTER button (29) in its "on" position (out) while recording from FM broadcasts.

To listen to cassette tapes

Set the tape monitor switch on your preamplifier or receiver to the monitor or tape position, and place the TAPE MONITOR button (36) in the monitor position (in). Press the EJECT button (4) on your 400XM and the CASSETTE DOOR (6) will open. Carefully seat the cassette in the CASSETTE COMPARTMENT (7) with the exposed portion of tape facing down and the full spool to your left.

Once the CASSETTE DOOR (6) has been closed, press the PLAY button (11) and the cassette will begin to play. To rewind the tape or return to a previous passage, press the REWIND button (10) and allow the tape to rewind to the appropriate point. Then press the PLAY button (11) for playback.

To skip passages or to wind the cassette to its end, press the FAST FORWARD button (12) and allow the tape to wind forward to the appropriate point.

To remove your cassette from the cassette deck, press the STOP button (13), then the EJECT button (4). The CASSETTE DOOR (6) will automatically open and you may remove the cassette.

To record cassette tapes

To record a cassette, set the function switch of your preamplifier or receiver to the program source you wish to record from and the TAPE MONITOR button (36) in the source position (out). Load a blank cassette as described above, making sure the cassette is rewound to its beginning. To record, press the PLAY button (11) and the RECORD button (9) simultaneously. The RECORD indicator (8) will light any time the cassette deck is in the record mode.

To optimize your recordings, the LINE LEVEL control (42) should be adjusted as high as possible without overload distortion. By adjusting the LINE LEVEL control (42) so that the PEAK LEVEL INDICATORS (18) read a maximum of 0 dB (+3 dB with metal tapes), you'll get a close approximation of the maximum recording level. However, the HEADROOM SAFETY INDICATOR (19) provides a far more accurate basis for adjustment. The LINE LEVEL control (42) may be further adjusted to provide high record levels as long as the HEADROOM SAFETY INDICATOR (19) never shifts to its red position, indicating tape saturation. Occasionally the HEADROOM SAFETY INDICATOR (19) may shift into the red even though the PEAK LEVEL INDICATORS (18) indicate "safe" levels. Regardless of the peak level reading, the recording level must be adjusted so that the HEADROOM SAFETY INDICATOR (19) never shifts into the red.

During recording, there may be passages in your program source you wish to omit from your tape. To edit these passages out, press the PAUSE button (14) to stop the recording process, then when you wish to continue recording, press the PAUSE button (14) again.

Pressing the RECORD MUTE pushbutton (5) during recording will defeat the program source, but allow the deck to continue recording a blank signal. During the recording process, you may wish to monitor the tape recording itself and compare it to the original source. By placing the TAPE MONITOR button (36) in the source position (out), you will hear the original program source. By placing the TAPE MONITOR button (36) in the monitor position (in), you will hear the recording in progress.

For special effects, the 400XM also includes a FADER control (41) that allows you to fade into a recording or out of a recording without changing your recording level settings. To fade into a recording (gradually increase the volume from silence to full volume) begin recording with the FADER control (41) in the minimum (full counterclockwise position) and gradually rotate it clockwise to the maximum position. To fade out of a recording, gradually rotate the FADER control (41) counterclockwise from its maximum position to its minimum position. When not in use, we recommend that you keep the FADER control (41) in its maximum position.

Meter ballistics

Occasionally, fast transients in music will make it difficult to get a peak reading on the PEAK LEVEL INDICATORS (18). By pressing the METER BALLISTICS button (23) to the "slow" position (in), the PEAK LEVEL INDICATORS (18) will hold their readings longer without affecting attack response time.

Live recording

The front panel MIC jacks (38) accept low impedance microphones (600 ohms or less) for live recording. For recording with microphones, plug the microphones into the MIC jacks (38) and adjust for proper record levels (as described above) using the MIC LEVEL control (37) instead of the LINE LEVEL control (42).

The 400XM can record simultaneously from two different sources—from microphones and from other program material—so you can record your own accompaniment to records, broadcasts or other tape decks. For microphone/line mixing, adjust both the MICROPHONE LEVEL control (37) and the LINE LEVEL control (42) for proper balance and record levels.

Timed recording and playback

The 400XM includes special circuitry that allows both timed recording and timed playback.

Timed recording (most often used to tape a particular radio program) can be achieved with the use of an external timer. Connect the POWER LINE cord (48) of the 400XM to the timer and set the timer to "start" according to the manufacturer's instructions. Disengage the TIMER OFF button (30) by placing it in its "out" position. Place the TIMER RECORD button (31) in its "on" position (in), insert a blank tape and adjust all levels as you would for any recording. Now set your system so that the appropriate broadcast (or other program source) is available for taping and the system is turned "on" at the time the 400XM is switched on for recording. This may be achieved by plugging the power cord of your receiver or system into the same timer, or another timer set to start at the same time. In some instances, you may wish to leave the entire system (other than the 400XM) turned "on" until recording is complete.

For timed playback, connect the POWER LINE cord (48) to the external timer and set the "start" time according to the manufacturer's instructions. Make sure the TIMER OFF button (30) is disengaged (out), and the TIMER PLAY button (32) is in its "on" position (in). Load a prerecorded tape and the 400XM will begin playback when the timer reaches its start point. As in timed recording, make sure the rest of your system is "on" at the appropriate starting time.

Record tabs

The plastic case on every blank cassette features record tabs. These are found on the TOP LEFT side of the cassette when you hold the cassette with the exposed portion of tape facing down and the appropriate side facing you. To preserve a recording from accidental erasure, break off the appropriate record tab with a small screwdriver. To re-record over a cassette where the tabs have been removed, cover the appropriate tab hole with a piece of adhesive tape.

To erase recorded material

Recording new material automatically erases previous material. To erase a cassette without recording new material, remove any microphones attached to the MIC jacks (38) and set the LINE LEVEL control (42) to "0." Then, using no program source, follow the instructions for recording.

Cleaning capstan and heads

The capstan and heads on your cassette deck should be cleaned after every 100 hours of use to prevent the accumulation of dirt and other materials that could interfere with recording and playback quality. Press the EJECT button (4) to open the CASSETTE DOOR (6). Clean all metal parts that come in contact with the tape with a cotton swab dipped in denatured alcohol. Clean the rubber pinch rollers with an aromatic hydrocarbon, as denatured alcohol will cause them to harden.

Maintaining appearance

The 400XM cassette deck is a high-quality precision instrument. If the directions in this manual are followed thoughtfully, the cassette deck should provide many years of musical pleasure.

Clean the metal panel with mild, diluted detergent applied with a soft cloth or cotton swab. Never use a strong abrasive cleaner.

Remove dust or smudges from the acrylic front window with diluted glass cleaner applied with a soft cloth. Do not use a strong solvent type cleaner or ammonia.

Congratulations.

Your new Harman Kardon High Technology Metal Cassette Deck is now properly connected and ready to use. We hope you'll enjoy it for years to come.

If in the future you consider upgrading your present system, we hope you'll consider our new line of High Technology Components. These include 4 receivers, an integrated amp, a preamp and a power amp. Each has been styled to be a perfect mate for our High Technology Metal Cassette Decks. And we're sure you'll find a component with all the power and features you're looking for.

Again, congratulations on your new cassette deck. With a little care it will provide enjoyment for a long, long time.